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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/217,183 12/21/98 HORNBECK

V 98-027

MMC1/0330

EXAMINER

WAYNE P. BAILEY
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2001 DANFIELD COURT
FORT COLLINS CO 80525

LAUCHMAN, I

ART UNIT

PAPER NUMBER

2877

DATE MAILED:

03/30/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

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Office Action Summary	Application No. 09/217,183	Applicant(s) Hornback et al
	Examiner L. G. Lauchman	Group Art Unit 2877

- Responsive to communication(s) filed on _____.
- This action is FINAL.
- Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

- Claim(s) 1-26 is/are pending in the application.
- Of the above, claim(s) 13-26 is/are withdrawn from consideration.
- Claim(s) _____ is/are allowed.
- Claim(s) 1-4, 11, and 12 is/are rejected.
- Claim(s) 5-10 is/are objected to.
- Claims _____ are subject to restriction or election requirement.

Application Papers

- See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- The drawing(s) filed on _____ is/are objected to by the Examiner.
- The proposed drawing correction, filed on _____ is approved disapproved.
- The specification is objected to by the Examiner.
- The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- All Some* None of the CERTIFIED copies of the priority documents have been received.
- received in Application No. (Series Code/Serial Number) _____.
- received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

- Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- Notice of References Cited, PTO-892
- Information Disclosure Statement(s), PTO-1449, Paper No(s). 3
- Interview Summary, PTO-413
- Notice of Draftsperson's Patent Drawing Review, PTO-948
- Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-12, drawn to a graded index of refraction waveguide, classified in class 385, subclass 132.
 - II. Claims 13-26, drawn to a method of fabricating a graded index of refraction optical waveguide, classified in class 216, subclass 24.
2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the graded index of refraction waveguide as claimed can be made by process of forming groove in a substrate which is subsequently coated.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

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5. During a telephone conversation with Peter Scott on 3/19/20001 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-12. Affirmation of this election must be made by applicant in replying to this Office action. Claims 13-26 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

Claim Objections

7. Claims 3 and 7 are objected to because of the following informalities: In line 1, "method" should be replaced with --waveguide-- . Appropriate correction is required.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-4, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (5,281,305). Lee teaches an optical waveguide that has one layer of dielectric material 10 (silicon dioxide) positioned on a substrate (not shown in Fig.1) defining a trench 16 (Fig.2) having side walls, the dielectric material having index refraction; a refractive layer 18 of optically transmissive material (borosilicate glass) adjoining the side walls within the trench and conforming to the side walls, the refractive layer having an index of refraction; and a core 20 (PSG-phosphosilicate glass) of optically transmissive material adjoining the refractive layer within the trench and conforming to the refractive layer (Fig.6), the core having an index of refraction. The refractive layer surrounds the core except on one side; and the dielectric material 23 (Fig.6) contacts the core on the one side where the refractive layer does not surround the core. The refractive layer 18 is U-shaped and surrounds the core except on the one side. Fig. 8 shows that the borosilicate layer (18 and 28) completely encircles the core PSG. A cap 28 of the refractive material 28 (see Fig. 9) extends across the one side of the core 20 between the ends of the U-shaped refractive layer 18. The cap 28 having essentially the same index of refraction as the U-shaped refractive layer 18; and the cap and the U-shaped refractive layer encircling the core 20. Lee waveguide does not indicate that the index of refraction of PSG is greater than the index of refraction of the layer 18, and the index of refraction of the layer 18 is greater than the index of refraction of the layers 10 or 23. However, it is well known in the art that in a typical waveguide

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structure the index of refraction of a core is greater than the index of refraction of the cladding material surrounding the core. It would have been obvious to one of ordinary skill in the art to form a graded index of refraction waveguide structure in the invention of Lee in order to minimize losses in signal intensity.

Allowable Subject Matter

10. Claims ~~5~~⁵-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:
As to Claim 5, the prior art or record fails to show all the elements as presently claimed, wherein the second refractive layer located between the first refractive layer and the core, the second refractive layer adjoining and conforming to the first refractive layer and the core.

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Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Grant et al, Okano et al, Nakamura et al, Maruo et al, Wojnarowski et al, Nijander et al, and Nakazawa et al, all describe integrated optical waveguides.

Papers related to this application may be submitted to Technology Center 2800 by facsimile transmission. Papers should be faxed to TC 2877 via the PTO Fax Center located in CP4-4C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Center number is (703)308-7722 or 308-7724.

If the Applicant wishes to send a Fax dealing with either a Proposed Amendment or for discussion for a phone interview then the fax should:

- a) Contain either the statement "DRAFT" or "PROPOSED AMENDMENT" on the Fax Cover Sheet; and
- b) Should be unsigned by the attorney or agent.

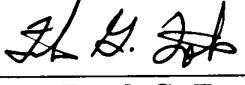
This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Layla G. Lauchman whose telephone number is (703) 305-0071.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC receptionist whose telephone number is (703) 308-0956.

**Layla G. Lauchman
Patent Examiner
Art Unit 2877
March 20, 2001/lgl**


**Frank G. Font
Supervisory Patent Examiner
AU 2877**